**Stage 2 Agricultural Production – Agricultural Report**

**Science as a Human Endeavour Task**

**Introduction and Purpose of Task**

In this task you will have the opportunity to explore and investigate a contemporary example of how agricultural science interacts with society. Select and explore a recent innovation or advancement linked to one of the topics in agricultural production.

You will be provided with three articles on different topics:

pest management in plant production

land management practices

reproductive technologies

Use one of these articles to select a specific aspect of one of the topics as the focus for your investigation. You will select and acknowledge a variety of relevant sources to find data and information on this aspect.

Your investigation must have a focus on at least one of the key concepts of Science as a Human Endeavour listed below:

**Communication and Collaboration**

* Science is a global enterprise that relies on clear communication, international conventions, and review and verification of results.
* International collaboration is often required in scientific investigation.

**Development**

* Development of complex scientific models and/or theories often requires a wide range of evidence from many sources and across disciplines.
* New technologies improve the efficiency of scientific procedures and data collection and analysis. This can reveal new evidence that may modify or replace models, theories, and processes.

**Influence**

* Advances in scientific understanding in one field can influence and be influenced by other areas of science, technology, engineering, and mathematics.
* The acceptance and use of scientific knowledge can be influenced by social, economic, cultural, and ethical considerations.

**Application and Limitation**

* Scientific knowledge, understanding, and inquiry can enable scientists to develop solutions, make discoveries, design action for sustainability, evaluate economic, social, and environmental impacts, offer valid explanations, and make reliable predictions.
* The use of scientific knowledge may have beneficial or unexpected consequences; this requires monitoring, assessment, and evaluation of risk, and provides opportunities for innovation.
* Science informs public debate and is in turn influenced by public debate; at times, there may be complex, unanticipated variables or insufficient data that may limit possible conclusions.

**Part A: Article Stimulus**

Select and read one of the articles provided and makes notes (a table would work well here) on: the science, the technology, historical perspectives of the innovation, future directions, issues or problems with the technology, implications for use.

Use the internet and other sources of information to do more research to add to your notes. Consider the agricultural concepts relevant to this innovation, the scientists involved in this work, cost or other factors associated with the use and distribution of this technology, other science disciplines involved in the technology, the impact of this technology, any limitations associated with the new possibilities, and any other information that may be relevant.

Search for articles, data, or other information that you could use to support your discussion in your report. Record the resources in a reference list for future reference.

Show your teacher your initial findings, the annotations, and notes (or table) about the article.

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part B: Links to the SHE key concepts**

Chose at least one of the SHE key concepts listed above and link the information you have gathered in Part A to these key concepts. Consider how the key concept(s) is demonstrated, what information is still needed, draw conclusions about how human ingenuity and application of knowledge has enabled this technology to become a reality.

e.g. Advances in scientific understanding in one field can influence and be influenced by other areas of science, technology, engineering, and mathematics

*The laser used to deter birds was designed and tested by physicists but has now been applied to an agricultural setting.*

Show your teacher the links you have made to the SHE key concepts chosen. This may be in the form of annotations on the articles, a table, a concept map, or any other format that helps you to make your ideas clear.

Date Due: \_\_\_\_\_\_\_\_\_\_\_\_

**Part C: Report Planning**

Search for any further information that will enable you to provide a comprehensive and detailed report, with highly relevant agricultural concepts as determined by the planning in Part A and B. This will also assist you to justify your conclusions and show how they relate the SHE key concept(s) chosen.

Record the resources in your reference.

Plan your report. This will be submitted to your teacher for feedback.

Date Due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Note: Part A and B and C are not included in the word count.

**Part D: Scientific Communication: Report**

The focus of your report should be the interaction between science and society rather than the agricultural concepts. You may present your report in a format of your choice.

Your report *must* include:

* an introduction, which links the focus of your investigation to the SHE key concept(s) chosen
* an explanation of how the focus of the investigation and key concept(s) illustrate the interaction between science and society
* relevant agricultural concepts and background information
* an explanation of the impact or significance of the focus of the investigation, e.g. potential of new development, effect on quality of life, environmental implications, economic impact, intrinsic interest
* a conclusion, referring to the SHE key concept(s) addressed.
* in text referencing and reference list

**Assessment Conditions:**

4 weeks to complete. Class time provided for research and support.

Students may submit one draft of the final report for feedback. This does not include the checkpoints and plans.

Verification of student work will occur throughout the task.

The report should be a maximum of 1500 words if written or a maximum of 9 minutes for an oral presentation, or the equivalent in multimodal form.

**Due date for final report:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Performance Standards for Stage 2 Agricultural Production

| - | Investigation, Analysis and Evaluation | Knowledge and Application |
| --- | --- | --- |
| A | Critically deconstructs a problem and designs a logical and coherent agricultural investigation with detailed justification.  Obtains, records, and represents data, using appropriate conventions and formats accurately and highly effectively.  Systematically analyses and interprets data and evidence to formulate logical conclusions with detailed justification.  Critically and logically evaluates procedures and their effect on data. | Demonstrates deep and broad knowledge and understanding of a range of agricultural concepts and practices.  Applies agricultural concepts, skills, and practices highly effectively in new and familiar contexts.  Critically explores and understands in depth the interaction between agricultural science and society.  Communicates knowledge and understanding of agriculture coherently, with highly effective use of appropriate terms, conventions, and representations. |
| B | Logically deconstructs a problem and designs a well-considered and clear agricultural investigation with reasonable justification.  Obtains, records, and represents data, using appropriate conventions and formats mostly accurately and effectively.  Logically analyses and interprets data and evidence to formulate suitable conclusions with reasonable justification.  Logically evaluates procedures and their effect on data. | Demonstrates some depth and breadth of knowledge and understanding of a range of agricultural concepts and practices.  Applies agricultural concepts, skills, and practices mostly effectively in new and familiar contexts.  Logically explores and understands in some depth the interaction between agricultural science and society.  Communicates knowledge and understanding of agriculture mostly coherently, with effective use of appropriate terms, conventions, and representations. |
| C | Deconstructs a problem and designs a considered and generally clear agricultural investigation with some justification.  Obtains, records, and represents data, using generally appropriate conventions and formats, with some errors but generally accurately and effectively.  Undertakes some analysis and interpretation of data and evidence to formulate generally appropriate conclusions with some justification.  Evaluates procedures and some of their effect on data. | Demonstrates knowledge and understanding of a general range of agricultural concepts and practices.  Applies agricultural concepts, skills, and practices generally effectively in new or familiar contexts.  Explores and understands aspects of the interaction between agricultural science and society.  Communicates knowledge and understanding of agriculture generally effectively, using some appropriate terms, conventions, and representations. |
| D | Prepares a basic deconstruction of a problem and an outline of an agricultural investigation.  Obtains, records, and represents data, using conventions and formats inconsistently with occasional accuracy and effectiveness.  Describes data and undertakes some basic interpretation to formulate a basic conclusion.  Attempts to evaluate procedures or suggest an effect on data. | Demonstrates some basic knowledge and partial understanding of agricultural concepts and practices.  Applies basic agricultural concepts, skills, and practices in familiar contexts.  Partially explores and recognises aspects of the interaction between agricultural science and society.  Communicates basic information about agriculture, using some appropriate terms, conventions, and/or representations. |
| E | Attempts a simple deconstruction of a problem and a procedure for an agricultural investigation.  Attempts to record and represent some data with limited accuracy or effectiveness.  Attempts to describe results and/or interpret data to formulate a basic conclusion.  Acknowledges that procedures affect data. | Demonstrates some limited recognition and awareness of agricultural concepts and practices.  Attempts to apply one or more basic agricultural concepts, skills, and/or practices in familiar contexts.  Attempts to explore and identify an aspect of the interaction between agricultural science and society.  Attempts to communicate information about agriculture. |